REMARKS

After entry of this amendment, claims 1-11 and 13-29 are pending. Reconsideration and continued prosecution of this application is respectfully requested.

New claims 27-29 recite additional patentable features disclosed in the application.

New claim 27 recites that "the alternating layers exhibit a refractive index difference along a z-axis parallel to a thickness of the flexible multilayer reflector and the alternating layers exhibit a refractive index difference along an x-axis in a plane of the flexible multilayer reflector, and the z-axis refractive index difference is no more than 0.5 times the x-axis refractive index difference" Support for this amendment can be found, at least, in the paragraph beginning at page 7 line 16 of the specification. No new matter has been added.

New claim 28 and new claim 29 recite that "the phosphor layer comprises phosphor particles dispersed within a polymeric binder". Support for these amendments can be found, at least, at page 14 lines 23-26 of the specification. No new matter has been added.

Provisional Obviousness-Type Double Patenting Rejections

Various claims of the present application were provisionally rejected over various claims of the following copending and commonly assigned applications, under the judicially-created doctrine of obviousness-type double patenting ("ODP"):

U.S. Application 10/726,968 (Attorney Docket No. 59418US002);

U.S. Application 10/727,026 (Attorney Docket No. 59417US002); and

U.S. Application 10/727,072 (Attorney Docket No. 59416US002).

In response thereto, Applicants note that the '072 application has now issued as U.S. Patent 7,091,653 (Ouderkirk et al.). In rejecting present claims 1-19 [sic: claim 12 has been canceled] over claims 1-9 of the '072 application, Office Action stated that "[a]lthough the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the instant application are broader than the claims of application '072 and therefore are anticipated thereby. For example ... Claim 1 of the instant application is anticipated by claim 1 of '072". Applicants respectfully disagree, and traverse this rejection. We refer to our arguments made in this regard in the Amendment/Response filed on Feb. 28, 2006, where we pointed out

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that claim 1 of the present application is broader in some respects and narrower in other respects than claim 1 of '072, that the blanket assertion that "the claims of the instant application are broader than the claims of application '072" is incomplete and misleading, and that claim 1 of the present application is *by no means* "anticipated by" claim 1 of '072. Keeping in mind that the focus of the ODP analysis is a comparison of the *claims* of the application with the *claims* of the reference, we further note that although present claim 1 and claim 1 of '072 both recite, for example, a flexible multilayer reflector, the limitations relating to that reflector are almost completely *opposite* each other:

	Present claim 1	Claim 1 of '072
limitation regarding "excitation light"	the multilayer reflector "transmits the excitation light"	the multilayer reflector "reflects the excitation light"
limitation regarding "visible light"	the multilayer reflector "reflects at least a portion of visible light"	the multilayer reflector "transmits visible light"

This table plainly shows that not only is present claim 1 not anticipated by claim 1 of '072, but it is in no way rendered obvious by claim 1 of '072 either. And since all pending claims in the present application include (directly or indirectly) the limitations quoted in the middle column of the above table, and all issued claims of the '072 application include (directly or indirectly) the limitations quoted in the right column of the above table, no ODP rejection of any of the present claims over the '072 claims can be sustained. The ODP rejection over the '072 application should be withdrawn.

With respect to the remaining ODP rejections, i.e., those relating to the '968 and '026 applications, Applicants again traverse on the grounds mentioned in their Feb. 28, 2006 Amendment/Response. Furthermore, after consideration of the foregoing argument relating to the '072 application, and the arguments that follow relating to the § 103 rejections, even if the provisional ODP rejections over the '968 and '026 applications are maintained, they will be the only rejections remaining in this application. As such, they should be withdrawn in view of the

practice outlined in MPEP § 804 (I)(B). The '968 and '026 applications have not been granted any notice of allowance as of the date of this writing.

§ 103 Rejections

The Office Action rejected claims **1,2,5,6, 8-11,** and **14** as being obvious (35 USC § 103(a)) over U.S. Patent 6,155,699 (Miller et al.) in view of U.S. Patent 6,172,810 (Fleming et al.) in view U.S. Patent 5,540,978 (Schrenk). According to the Office Action, it would have been obvious to substitute the flexible polymeric multilayer reflector of Fleming for the reflector of Miller "to reduce the cost of the reflector when higher refractive indices are unnecessary", and it would have been obvious to substitute the multilayer reflector of Schrenk in the device taught by Miller and Fleming "to maximize the life of the reflector thereby maximizing the life of the device." Applicants traverse these rejections.

The Office Action also rejected claims **3, 7,** and **15** as being obvious (35 USC § 103(a)) over Miller and Fleming, alleging that "[o]ne of ordinary skill in the art would recognize that a phosphor material comprising an adhesive, a phosphor material comprising a binder and an adhesive disposed between the phosphor material and the first reflector are obvious variations of attaching the phosphor layer to the first multilayer film." Applicants traverse these rejections.

The Office Action also rejected claim **4** as being obvious (35 USC § 103(a)) over Miller, Fleming, and Schrenk and further in view of the printed publication "Giant Birefringent Optics in Multilayer Polymer Mirrors" (Weber et al.), stating that Weber discloses the use of birefringent layers within a multilayer polymer mirror. Applicants traverse this rejection.

The Office Action also rejected claims **1,2,5-8,10-13,16-19,** and **26** as being obvious (35 USC § 103(a)) over U.S. Patent 5,813,753 (Vriens et al.) in view of Fleming and Schrenk. Applicants traverse these rejections.

The Office Action also rejected claims **1, 8,** and **20-24** as being obvious (35 USC § 103(a)) over U.S. Patent 4,882,617 (Vriens) in view of Vriens '753, Fleming, and Schrenk. Applicants traverse these rejections.

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With regard to claims 1, 2, 5, 6, 8-11, and 14, the proposed combination of Miller in view of Fleming et al. lacks the required "motivation to combine" (see MPEP 2143.01), and further, Fleming et al. is non-analogous art.

The Office Action states that: "[i]t would have been obvious ...to substitute the reflector of Fleming for that of Miller because it reduces the cost of the reflector when higher refractive indices are unnecessary". Applicants disagree.

The cited references do not disclose or suggest, nor would one or ordinary skill in the art assume, that reflectors with higher refractive indices necessarily cost more than reflectors with lower refractive indices. Fleming et al. merely states that in general, higher refractive index materials can be obtained using non-polymer materials, such as certain metallic, inorganic, organometallic, and ceramic materials, than can be obtained with polymeric materials, and that refractive index differences of more than 1.2, or even more than 2, can be obtained in some instances when non-polymer layers are placed adjacent to polymer layers in a reflective coating. See Fleming et al. at col. 6 lines 22-39. But Fleming et al. also teaches that as the average refractive index difference between adjacent layers is increased, fewer layers can be used to achieve similar results. See Fleming et al. at col. 6 lines 40-60. Moreover, Applicants point out that a large number of factors—not only raw material cost and not only the number of layers in the reflective stack, but other factors such as equipment costs, setup costs, labor costs, factory costs, volumes desired, and so forth—determine the cost of a given reflector for a given application. By no means are polymeric or low refractive index reflectors always lower cost than non-polymeric or high refractive index reflectors. Thus, one of ordinary skill in the art would not be motivated to substitute the reflector of Fleming et al. for the reflector of Miller et al. for the reasons given in the Office Action.

The remaining cited references fail to disclose or suggest a "motivation to combine" and thus do not remedy the deficiencies found in Miller et al. and Fleming et al. In view of the foregoing, the claims rejected over Miller et al. in view of Fleming et al. are submitted to be allowable.

Applicants also note that Fleming et al. is non-analogous art. For purposes of evaluating the obviousness of claimed subject matter, each reference relied upon must constitute "analogous art". See MPEP§2141.01(a)(1). In this regard, the reference must either be in the field of

applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned. See Id.

The Fleming et al. reference is not in the field of applicant's endeavor. Fleming et al. is directed to retroreflective articles that have the ability to redirect incident light back towards a light source, such as road signs, barricades, license plates, safety vests, jogger's shoes, and canvas-sided trucks. See col. 1, lines 10-20. Applicants field of endeavor is phosphor-based light emitting diode (LED) light sources. Retroreflective articles and phosphor-based LED light sources are not the same field of endeavor. One of skill in the phosphor-based LED light source art would not consult the retroreflective art when trying to solve a phosphor-based LED light source problem. Thus, the Fleming et al. reference is not in the field of applicant's endeavor.

The Fleming et al. reference is not reasonably pertinent to the particular problem with which the inventors were concerned. The inventors were concerned with, among other things, improving the operation of phosphor-based LED light sources. The problems associated with retroreflective articles are different than the problems associated with phosphor-based LEDs. For example, selecting reflector materials that can withstand the energy flux of both the LED and the phosphor layer and the elevated operating temperatures of a phosphor-based LED are not problems encountered with retroreflective road signs, barricades, license plates, safety vests, jogger's shoes, and canvas-sided trucks. Thus, one would not be reasonably expected or motivated to look to the retroreflective arts for improving phosphor-based LEDs. Hence, the claims (1-11 and 13-26) rejected over one or more references in combination with Fleming et al. are submitted to be allowable since Fleming is non-analogous art.

Based on these arguments alone, the rejections of all the claims have been overcome, and Applicants respectfully submit that all pending claims are in condition for allowance.

With regard to the claims (1, 2, 5-8, 10-13, 16-19, and 26) rejected over Vriens '753 in view of Fleming et al. and Schrenk, the alleged motivation to combine cited in the Office Action, namely, reducing the cost of the reflector when higher refractive indices are unnecessary, and maximizing the life of the reflector thereby maximizing the life of the device, is not supported by the record. The alleged cost-related motivation has been discussed above. The references also fail to suggest or imply that the reflector of Schrenk --even if modified to transmit UV light and reflect at least a portion of visible light, and even if it utilized polymers resistant to degradation

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by UV light -- would have any longer lifetime than the original multilayer dielectric stack of Vriens '753. Thus, the record does not support the proposition that one of ordinary skill, faced with Vriens '753, Fleming et al., and Schrenk, would have been motivated to combine the references in the manner suggested in order to maximize the life of the reflector, or to maximize the life of the device. The rejection should be withdrawn.

With regard to claims 3 and 15, Applicants refer to and repeat their arguments made with respect to these claims in the Amendment/Response of Feb. 28, 2006. In the latest Office Action the Examiner appears to equate "epoxy" with "adhesive", stating that:

- Miller "teaches an epoxy deposited over the phosphor material to form a lens assembly for the LED device (Column 4, Lines 42-45)"
- Schrenk "teaches an adhesive layer used to join two polymer layers in a thin film device for use with LED (Column 7, Lines 62-64)"
- Vriens '753 "teach an epoxy material used to contain phosphor more efficiently in an LED device (Column 3, Lines 31-50)."

With respect to Schrenk, despite the Examiner's reference to "use with an LED", no such suggestion can be found in Schrenk. Rather, Schrenk teaches other applications for the UV-reflecting multilayer film, such as solar detoxification (FIG. 2 of Schrenk) and various other applications mentioned, for example, in columns 1 and 2 of Schrenk.

With respect to Miller and Vriens '753, there is no indication at all that the "epoxies" mentioned in the cited passages are "adhesives". In this regard, Applicants refer to the Encyclopedia of Polymer Science and Engineering (John Wiley & Sons, 1986) on the topic of "Epoxy Resins". This reference demonstrates that epoxies are *only sometimes* (and not predominantly) used as adhesives:

> "Epoxy resins were first offered commercially in 1946 and are now used in a wide variety of industries. Of the 135 metric tons sold in the United States in 1983, 45% (60 t) were used in protective coatings, and the remainder (75 t) in structural applications such as laminates and

composites, tooling, molding, casting, construction, bonding and adhesives, and others."

Encyclopedia of Polymer Science and Engineering (John Wilcy & Sons, 1986) at p. 322. Since the references cited by the Examiner fail to show the use of adhesives in LED-excited phosphor-based light sources (PLEDs), the rejection of claims 3 and 15 should be withdrawn for this additional reason, or the Examiner is respectfully asked to submit appropriate documentary evidence in support of the rejection, as required for example by MPEP § 2144.03.

CONCLUSION

In view of the foregoing, it is submitted that the application, including all pending claims 1-11 and 13-29, are in condition for allowance, the early indication of which is earnestly solicited.

Respectfully submitted,

18 August 2006
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